

HYPOMAGNESAEMIA (new diagnosis in adults) (Mg <0.7 mmol/L)

A new Mg result
<0.4mmol/L will be
phoned to the GP
surgery, or GP
collaborative if OOHs

0.40 – 0.69 mmol/L
Moderate

<0.40 mmol/L
Severe

BOX 1

Some causes of hypomagnesaemia:

Drugs: – see BOX 2

GI causes:

Malnutrition (esp alcoholics).
Malabsorption.
Diarrhoea – chronic.
Intestinal fistula.
Short bowel syndrome.

Renal loss:

Hypercalcaemia
Diabetes mellitus (poorly controlled).
Alcoholism.
Rare inherited tubular disorders e.g.
Gitelman or Bartter syndrome.
Tubular dysfunction (recovery from
acute tubular necrosis or
postobstructive diuresis).

Iatrogenic:

Long term Mg-free IV fluids or TPN.

Other:

Refeeding syndrome in chronic
malnutrition/anorexia.

Clinical reason for low magnesium? (see BOX 1&2)
Assess if patient clinically unwell/symptomatic (BOX 3)?

Cause unclear?

Consider sending
24hr urine in
acidified bottle to
lab for magnesium
– see BOX 4

Check renal function,
calcium and potassium
levels –

- Low Mg can cause
secondary hypocalcaemia
and hypokalaemia

BOX 3

Symptoms include:

- Weakness
- Apathy
- Tremor
- Paraesthesia
- Tetany
- Nystagmus

At <0.4:

- Seizures
- Drowsiness
- Confusion
- Coma

BOX 4

Urinary Mg loss of
>1.0mmol/24h in a
patient with normal
renal function
suggests renal
magnesium wasting

BOX 2

Some drugs known to cause
hypomagnesaemia:

- PPIs
- Diuretics (loop and thiazide)
- Aminoglycosides
- Amphotericin
- Chemotherapy
 - Cisplatin
 - Carboplatin
 - Epidermal Growth Factor
Receptor (EGFR) Inhibitors
(particularly Cetuximab)
 - Interleukin-2
 - Pegylated Liposomal
Doxorubicin
- Immunosuppressants
 - Ciclosporin
 - Tacrolimus
- Theophylline

Mg 0.40 – 0.69 mmol/L

-Review PPI and diuretic meds.
-Consider dietary advice.
-Consider oral magnesium or admission
for IV if symptomatic/unwell or resistant
hypocalcaemia/hypokalaemia.
-Up to 24 mmol/d oral Mg may be given
in adults (see below) in divided doses.
Dose can be limited by SEs (diarrhoea).
In renal impairment, magnesium should
be avoided or the dose reduced.
-Monitor response weekly.
-Normalisation may take 6-8 weeks.
-Long term maintenance replacement
may be needed if a reversible cause is
not found and removed.

Mg <0.40 mmol/L

-Likely to need admitting for IV Mg
replacement.
-Patients may need oral Mg
replacement following IV
treatment to maintain levels within
normal range (see below).

To discuss with the duty biochemist call 0114 243 4343

Dietary Sources of Magnesium:

Magnesium is widely distributed in plant and animal foods and in beverages. Green leafy vegetables, such as spinach, legumes (eg peas, beans, chickpeas, lentils), nuts, seeds, and whole grains, are good sources. <https://ods.od.nih.gov/factsheets/Magnesium-HealthProfessional/#h3>

Oral Magnesium Preparations:

Magnesium (Mg²⁺) salt and form	Supplier (Brand)	Form and strength	Qualitative and quantitative composition	Adult (>18years) dose
Magnesium-L-aspartate	Kora Healthcare Ltd (Magnaspartate®)	243 mg (10 mmol) powder for oral solution	Each 6.5 g sachet of powder contains magnesium aspartate dihydrate equivalent to 10mmol (243 mg) of magnesium.	1-2 sachets daily (243-486 mg magnesium or 10-20 mmol magnesium)
Contains sucrose. Patients with rare hereditary problems of fructose intolerance, glucose-galactose malabsorption or sucrase-isomaltase insufficiency should not take this medicine. Care should also be taken in diabetic patients. Frequent and long-term use of Magnaspartate 243 mg may be harmful to the teeth (caries).				
Magnesium glycerophosphate	Neoceuticals Ltd (Neomag®)	4 mmol chewable tablets	Each chewable tablet contains magnesium glycerophosphate equivalent to 4mmol (97mg) of magnesium	Starting doses for adult patients are recommended as 4-8 mmol (1-2 tablets) administered 3 times a day. This equates to a total dose of 12 to 24 mmol per day taken in divided doses.

For more information please see:

<http://www.medicines.org.uk/emc/medicine/33475>

<http://www.medicines.org.uk/emc/medicine/30238>

bnf.org

If an undesirable effect occurs, such as diarrhoea, the therapy should be temporarily interrupted and can be restarted after improvement and /or elimination of the symptoms with a reduced dosage.

